HOUSEHOLD AND NATIONAL FOOD SECURITY IN SOUTHERN AFRICA

Edited by
Godfrey D. Mudimu & Richard H. Bernsten

University of Zimbabwe UZ/MSU Food Research in Southern Africa

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FOREWORD

In 1985 the University of Zimbabwe and Michigan State University initiated a Food Security Research Network for Southern Africa. The objectives of the network are to conduct research that informs policymakers about food security issues and to help strengthen the regional capacity for food policy analyis. The underlying premise of the network is that building excellence in research capacity for national policy analysis comes through experience. In practice, this requires a long-term commitment to analytical capacity building, consistency in funding, and constant interaction between researchers and policymakers.

The network has sponsored four annual conferences for network researchers, policymakers, SADCC officials, and representative of international and donor agencies. The aim of the conference is to share research findings, identify new research themes, and provide an opportunity for policy dialogue between regional researchers, policymakers, and government officials.

The 1988 conference brought together 110 participants who deliberated on 28 papers. In the Official Opening, Vice-Chancellor W.J. Kamba of the Univesity of Zimbbawe highlighted the importance of including health related-issues as a component of food security; and Zimbabwe's Senior Minister of Finance, Economic Planning, and Development B.T.G. Chidzero outlined policy reform priorities for Southern Africa. Subsequent sessions focused on *SADCC's Food Security Programme, the Impact of Market Reform on Food Security, Food Security Policy Options, New Technology to Improve Food Security, Family Food Security Options in Low-Rainfall Areas, Expanding Agricultural Trade in the SADCC Region, Nutrition and Food Security, the Contribution of Small-Scale Rural Enterprises to Employment Generation and Food Security, and the Impact of Irrigation on Food Security.*

A highlight of the 1988 conference was the participation of five nutritionists from Zambia, Zimbabwe, Sweden, and the United States. The presence of the nutritionists stimulated formal and informal discussions on the food access side of the food security equation and drew attention to the need to initiate more research in this area.

A second highlight of the 1988 conference was the attention given to reducing barriers to expanded intraregional trade in the SADCC region. Results presented suggest that there appear to be substantial price and nonprice barriers to expanded trade. Nevertheless, there exist significant opportunities for expanding intraregional trade that can be realized through appropriate government initiatives.

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IMPACT OF MARKET LIBERALISATION ON HOUSEHOLD FOOD SECURITY IN TANZANIA

H.K.R. Amani, S.M. Kapunda, N.H.I. Lipumba, and B.J. Ndulu[1]

INTRODUCTION

During the November 1987 *Conference on Food Security Research in Southern Africa*, we presented a paper on the impact of adjustment and stabilization policies in general, and market liberalisation in particular, on food security in Tanzania. Our 1987 paper included: a brief history of agricultural policy since independence in 1961; an analysis of the characteristics of food consumption in rural and urban areas; a detailed examination of the evolution of the intervention regime and its impact on production, consumption, and food security; and an indepth discussion of the impact of recent adjustment policies and market liberalization on food security.

This paper analyses the impact of policy measures since July 1984 on household food security. The paper is divided into four sections. A summary of our 1987 paper and a review of factors affecting food supply in the long- and short-run at the micro level is presented in Appendix I. Section two, a major component of this paper, uses micro-level data to analyse the impact of food market liberalization on consumption growth, mainly through income and price changes. The third section examines some possible policy interventions to reduce food insecurity for those most at risk and presents an *ex ante* analysis of the impact of such policies on the at-risk households.

ACCESSIBILITY TO FOOD

Demand estimates

The main factors affecting household-level demand for a commodity are income, own price, cross-prices, and household size. Other factors like culture, location, religion, sex, and education essentially reflect consumer tastes. Thus, demand estimates differ between countries, regions, rural-urban areas, and across income groups (Kapunda, 1988).

In mainland Tanzania, the food share of household budgets has been estimated at 65%. The budget share is about 70% in rural areas and about 50% in urban centres. Furthermore, the food budget shares are highest in the lowest income group and lowest in the highest income groups. Similar trends are also observed for income or expenditure elasticities. Gross elasticity of demand for food is relatively high (0.87). The magnitude is highest in low expenditure group (0.99) and lowest

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Table 1. Expenditure elasticities of major staples in mainland Tanzania.

Location	Maize	Rice	Beans
Urban	0.55[a]	0.66[b]	0.32[a]
Rural	0.80[a]	1.51[b]	0.75[a]
All[c]	0.64	0.94	0.48

[c]All mainland Tanzania estimates are weighted averages. The weights are budget shares.
Source: [a]Kapunda (1988); [b]Odegaard (1985)

in the upper expenditure group (0.76). It is generally higher in rural areas (0.83) than in urban areas (0.81) (Kapunda, 1988).

In this study, food is a composite commodity made up of maize (flour), rice, and beans. These commodities are chosen because of the availability of good data and:

- o they cover a significant portion of total food (*i.e.*, about 40% of total food expenditure);
- o they present the main nutrition items which are normally available to many consumers, *i.e.*, carbohydrates (maize, flour, and rice) and protein (beans);
- o the percentage of calories from only two staple items (maize and rice) is over 70%; and
- o the contribution to total human energy supply from selected food items is quite substantial, about 40% (Amani *et al.*, 1977).

Total expenditure elasticities for three commodities are shown in Table 1.

Price elasticity of demand for food is estimated at -0.88[2]. These elasticities have been useful in estimating the rate of change in national food consumption. The model by Edel (1969) is employed to obtain the estimates:

$$g_f = n + (1 + n)e_y \; g_y - (1 + n)e_p \; g_p$$

where:

g_f = rate of increase in national food consumption
n = rate of growth of population
e_y = income or total expenditure elasticity of demand for food
g_y = rate of change in per capita income
e_p = price elasticity of demand for food
g_p = rate of growth in relative price of food

[2]Weighted average of maize flour, rice, and beans elasticities. Sources of elasticity estimates are Gerrard (1981) for maize meal (-0.90) and rice (-1.50); and Kapunda (1988) for beans (-0.64).

For the period 1967-68 to 1986-87, the annual increase in national food consumption is estimated to be 5.9%. For the period before liberalization (1970-71 to 1983-84), the annual increase in national food consumption is estimated at 4.2%, while the supply of food (maize, rice, and beans) grew at an average annual trend rate of only 2.6%. However, between 1983-84 and 1986-87 food supply grew at an average annual trend rate of 5.4%, surpassing the annual increase in national consumption of 4.2% as shown in Table 2.

Nevertheless, since liberalization is only four-years old, any conclusion or policy evaluation remains preliminary. The next section further examines the impact of food market liberalization on accessibility to food.

Impact of food market liberalization on access to food

In an economy where food markets function reasonably well and supplies are adequate, both household and individual access to food depends on incomes. Policies that induce increased incomes do in fact also raise accessibility to food and hence food security. The recent liberalization process in Tanzania has helped

Table 2. Production and net importation of maize, paddy, and mixed pulses ('000 mt).

	Maize		Paddy[a]		Mixed Pulses
Year	Production	Net import/ (Export)	Production	Net import/ (Export)	Production
1967-68	551	(8.3)	104	3.8	112
1968-69	638	(43.3)	126	0.0	102
1969-70	488	46.9	132	0.0	122
1970-71	719	(53.4)	171	0.0	108
1971-72	621	92.3	187	(4.2)	na
1972-73	887	78.9	301	(10.2)	178
1973-74	761	183.6	223	23.0	179
1974-75	1,367	317.6	265	63.0	217
1975-76	1,449	106.5	346	20.8	249
1976-77	1,664	41.6	314	5.3	185
1977-78	1,465	34.3	387	48.1	197
1978-79	1,720	(49.0)	262	41.2	218
1979-80	1,726	4.5	291	54.7	310
1980-81	1,839	274.6	200	62.2	272
1981-82	1,654	231.6	320	66.5	297
1982-83	1,651	123.4	350	29.4	282
1983-84	1,939	194.3	356	57.1	281
1984-85	2,067	128.5	425	36.1	406
1985-86	2,127	6.1	496	32.9	354
1986-87	2,359	na	644	na	424

[a]Conversion factor from paddy to rice = 0.6
na = data not available
Source: Market Development Bureau, (various years).

increased rural real incomes and the supply of food. Rural real incomes per capita, measured by agricultural GDP per capita at 1976 constant producer prices, increased at an average rate of 2.4% per annum between 1984 and 1987. Rural incomes per capita, deflated by the national consumer price index, increased at an average rate of 0.33% per annum during the same time period. The comparative average growth rates for the crisis period of 1979-83 were -0.63% and -5.28% per annum, respectively (Table 3). The post-1984 period was thus characterized by positive real income per capita growth for rural producers for the first time since the onset of the crisis in 1979.

The estimated rural expenditure elasticities for maize flour, rice, and beans (0.80, 1.51 and 0.75, respectively - Table 1), combined with income per capita growth data, allowed us to estimate the growth rate of consumption of maize, rice, and beans per capita for the post-1984 period. Assuming that increased consumption comes out of own production, the relevant income measurement is GDP at factor cost (at constant prices), rather than income deflated by the CPI. Estimated consumption per capita average growth rates for the 1984-87 period, resulting from increase in real rural incomes per capita, are 1.95%, 3.68%, and 1.83% for maize flour, rice, and beans, respectively (Table 4).

If one deflates rural incomes by the CPI, the resultant average growth rates of consumption per capita are estimated at 0.26%, 0.5%, and 0.24% for maize flour, rice, and beans, respectively.

Using either measure of real income growth, the estimates show that consumption per capita of the major food staples increased in the rural areas during the post-1984 period. In comparison, consumption per capita of the major staples declined during 1976-83, given the decline in rural income per capita. The estimated rates of decline--using real incomes at factor cost--averaged 0.7%, 1.0%, and 0.6% per annum for maize flour, rice, and beans, respectively. Using CPI deflated incomes,

Table 3. Average annual growth of real agricultural income per capita, Tanzania, 1979 to 1987[3].

Period	Agricultural income (%):	
	At factor costs (1976 prices)	Deflated by CPI
1979-83	-0.63	-5.28
1984-87	2.4	0.33

Source: Computed from *National Accounts* (respective years) and 1987 population census data.

Table 4. Estimated per capita growth rates for major staples, rural Tanzania, 1984 to 1987.

Commodity	Growth rate	Expenditure share of total for the three staple crops
Maize	1.95	60.8
Rice	3.68	15.4
Beans	1.83	23.8

Source: Computed from data in Tables 1 and 3.

the respective rates of decline of consumption per capita were 0.3%, 8%, and 0.3% for maize flour, rice, and beans, respectively[3].

A quick check on the plausibility of the estimates of rural consumption per capita growth, using data on total supplies (local production + imports - exports) inclusive of stocks, indicates that estimates based on real incomes at cost are the most reasonable. As noted earlier, the total supply of the three staples for the period 1983-84 to 1986-87 grew at an average annual trend rate of 5.4%. Given rural population growth rate of 2.6%, the per capita supply growth rate for the period was 2.8%. The weighted average rural consumption growth rate per capita from the estimates for the three staples works out to 2.2% (weights used for composite elasticity are expenditure proportions on each item). The difference between the supply growth rate and the estimated consumption growth rates could be explained by growth in stocks at the level of marketing agencies and producer households.

Food consumption estimates for non-agriculturalists are more difficult to derive because official recorded incomes earned by non-agriculturalists are far below actual earnings, as deduced from their expenditure side. Two recent surveys[4] on food expenditure by Dar es Salaam residents confirm the wide gap between expenditure on food and wage levels. In a survey covering low income areas of Manzese and Buguruni in Dar es Salaam, monthly expenditure on food averaged Tshs. 12,090 for an average household of six persons. The median household spent Tshs. 7,500 per

[3] This analysis does not take into account substitution effects resulting from changes in relative prices for particular items since the year of survey (1976-77). It is nevertheless indicative of a general increased in consumption across the staples.

[4] The first survey was by Aili Mari Tripp, covering 300 households in Manzese and Buguruni over a five-month period as part of a larger study on the informal sector and grassroot dynamics in Tanzania. The second survey was by I.A. Msambichaka and W.E. Maro, covering 225 cases in Manzese and 250 cases in the high income area of Osterbay in Dar es Salaam.

month on food. Official incomes from wages during the survey period (October 1987-January 1988) ranged from Tshs. 1,260 to Tshs. 3,000 per month. The respondents covered the gap between expenditure and official incomes from informal activities, including the sales of food preparation, urban subsistence agriculture, small crafts, and trade in small consumer items. This survey shows a large increase in the participation rate by all household members, including children, in income-generating activities.

In a separate survey of Dar es Salaam, covering a wider spectrum of residential areas, Msambichaka and Maro (1988) confirm the existence of the gap between official incomes and actual expenditures by households on food. In the case of the low income Manzese residential area, based on food budget, Msambichaka and Maro estimate the minimum household food expenditure for a household of six to be Tshs. 7,482. For the high income areas of Msasani/Osterbay, the estimated minimum expenditure on food was Tshs. 12,840 for a household of six persons. Wage incomes in such areas range between Tshs. 5,000 and Tshs. 9,000 after tax.

If one considers only the official incomes by non-agriculturalists, taking minimum wages over time, food equivalence of these wages will differ depending on whether one looks at the trends using official or open market prices. During the post-1984 period, official consumer prices rose at a faster rate to close the gap with open market prices as a matter of policy. The effective prices paid by consumers, however, have been dominated by open market prices. given that more than 80% of requirements for consumption are obtained from the open markets.

In terms of maize flour equivalence, while the minimum wage declined by 14.7% between 1984 and 1987 (from 3.4 kgs per day down to 2.9 kgs per day) at official prices, at open market prices an increase of 90.5% over the same period was recorded (from 1.89 kgs to 3.6 kgs). The weighted average of the two sources (with weights of 0.8 and 0.2 for open market and official sources, respectively) yields an increase of 69.5% between 1984 and 1987. Thus, the minimum wage thus rose faster than the weighted average price of maize flour. In terms of rice equivalence at official prices, the minimum wage declined by 45.5% between 1984 and 1987 (from 2.0 kg to 1.09 kg per day). At open market prices, the minimum wage increased by 28.6% (from 0.77 kg to 0.99 kg per day). The weighted average (with weights of 0.9 and 0.1 for open market and official sources, respectively) reveals on increase of 21.2% over the period.

Policy interventions to guarantee food security for all

The general objective of food security is to guarantee "access by all people at all times to enough food for an active, healthy life" (World Bank, 1986). Attaining this objective entails providing adequate food to all members of society, including those who do not earn adequate income to purchase food or do not produce enough food for their own consumption. For a poor country like Tanzania, this objective may be too ambitious. The feasibility of attaining such an objective, however, depends on the policy instruments used. Direct and general provision of subsidies to reduce food prices is not feasible in the long run because of the financial burden it places

on the government. Moreover, low consumer food prices are likely to be partly financed by low producer prices that will discourage production and sales to the government.

For poor countries, the feasible policy for attaining food security is to increase the productivity and earning power of poor households and the efficiency of food markets. Households should have enough income to purchase adequate amounts of food and this food should be readily available in the markets. Market liberalization that leads to increases in the incomes of the rural population and improves the performance of food markets, generally improves rather than worsens food security in the rural areas. In urban areas, liberalization that improves the functioning of markets would improve food security, particularly in cases where a low food price policy was not effective and most consumers purchased their food in parallel markets at high prices.

An overview of nutritional status in Tanzania

The nutritional status of the Tanzanian population is not accurately known because a nationwide nutritional survey has not been carried out. Lack of nationwide data on nutritional status and how it has evolved over time constrains the analysis of the impact of market liberalization on the food security status of households and individuals. Due to these data limitation, firm conclusions can not be honestly drawn.

In 1980, the Ministry of Agriculture estimated that on the average, a Tanzanian consumes 2,417 calories and 61.7 grams of protein per day. (Table 5). These estimates are consistant with those derived from the 1976-77 household budget survey for the rural areas. (Odegaard, 1985). The majority of the population live in rural areas and depend on agriculture, using mainly human power. The calorie requirement for agricultural work is higher than the minimum requirement. Moreover, the distribution of food consumption is not equal. Hence, there is a significant proportion of the population that does not consume a calorie-adequate diet.

Children--particularly those under five years of age--pregnant women, and lactating mothers are the most vulnerable groups in the population. Unfortunately, there are no accurate estimates of the proportion of clinical malnourished or underweight children. A survey of community studies on nutrition in 1980 indicates that up to 60% of the children had mild to severe malnutrition, characterized by being under 80% of normal weight-for-age (ILO 1982).

Recent protein energy malnutrition surveys conducted by UNICEF indicate that the problem of malnutrition is still serious (Table 6). In the Iringa Region where UNICEF implemented a nutrition education programme supported by modest feeding supplements, the percentage of total underweight children declined from 56.0% in June 1984 to 38.7% in September 1987.

In the Kagera Region where there was no feeding programme, the percentage of total underweight decreased from 49.4% in September 1985 to 39.7% in December 1987. For the Kagera and Iringa Regions we can infer that protein-energy

Table 5. Nutritional analysis of average per capita food intake, Tanzania, 1980.

Item	Grams/ day	Calories/ day	Protein (g/day)	Fats (g/day)
Cereals				
Rice (milled)	33	15	2.3	0.3
Maize	237	766	17.8	2.6
Wheat	16	46	1.3	0.1
Millet & sorghum	124	391	12.3	3.8
Other cereals	7	22	0.7	0.2
Total cereals	417	1340	34.4	7.0
Starches				
Cassava	143	382	2.5	0.1
Bananas	266	164	2.2	0.9
Other starches	70	62	1.1	0.2
Total starches	479	608	5.8	1.2
Other				
Sugar	19	67		
Pulses	51	174	11.3	0.9
Nuts	3	5	0.4	0.8
Vegetables	104	25	1.4	0.2
Fruits	61	24	0.3	0.4
Fats & Oils	8	73	8.2	
Other Food Crops	11	2		
Meat/fish products				
Meat & eggs	31	53	4.4	4.4
Fish	26	27	2.6	0.4
Milk	39	25	1.1	1.0
Total		2,417	61.7	24.5
Plant products		2,312	53.6	18.7
Animal products		105	8.1	5.8

Source: URT

Table 6. Protein-energy malnutrition (weight for age) among under fives in selected regions of Tanzania (%)[a].

Region/ district	Month/year	Total underweight	Severely underweight
Iringa	June 1984	56.0	6.4
	September 1987	38.7	1.7
Ruvuma	May 1987	53.3	7.5
	October 1987	47.7	3.8
	February 1988	50.6	5.8
Kagera	September 1985	49.4	6.5
	December 1987	39.7	4.1
Mtwara District			
	November 1987	50.6	7.0
	March 1988	44.9	5.8
Newala District	November 1987	63.9	10.0
	March 1988	60.7	8.5
*Masasi**	November 1987	52.4	7.4
	March 1988	59.8	11.6
Kilimanjaro (Hai Dist.)	October 1987	57.7	3.5
	April 1988	32.1	3.4

[a]Percent of children surveyed.
Source: UNICEF (1988).

malnutrition has tended to decrease over the past three-to-four years. In general, however, the percentage of under weightchildren is less than 60%.

Causes of malnutrition and policy interventions

The improvement in national food availability since 1984 has helped reduce the incidence of malnutrition among children in some regions. Nevertheless, the level of the remaining malnourished children is still too high, even in regions that are surplus food producers such as Ruvuma. The high incidence of malnutrition among children is partly the result of feeding habits. In most areas in the country, traditional food for weaning children is gruel made out of water and maize or cassava flour which is deficient in oils and proteins. Moreover, the frequency of feeding is low and, hence, the child does not ingest adequate calories.

Traditional customs favour male adults in the allocation of food, particularly meat. Women usually allocate only a small proportion of the good food to themselves and

their children. Thus, the battle against malnutrition must include a strong programme of nutrition education. Tanzania authorities have taken steps to expand nutrition education, including a *Radio Tanzania* mass education campaign titled *"Chakula ni Uhai"* (Food is Life). The more effective programmes have been those undertaken by UNICEF in rural areas, particularly in the Iringa Region, that included nutrition eduction and modest food supplements. To improve food security, nationwide, programme that emphasize nutrition education and the utilization of nutritious food that is locally available is necessary.

Rural households are generally self-sufficient in staple foods. The poor regions tend to depend more on subsistence production. Generally, the output mix of cereals, legumes, and oilseeds available in most regions contain the necessary nutrients, if eaten in adequate quantities, to reduce the incidence of protein-energy malnutrition. Thus, increasing food production and effective nutrition education can lead to a significant decrease in malnutrition.

Successful market liberalization will lead to more regional specialization according to comparative advantage and an increase in dependence on the market for food purchases over time. It is sometimes argued that production of cash crops may actually worsen the nutrition status of children because men control the cash and will not purchase adequate food for their families. We believe that African men are, in general, responsible parents. With nutrition education, we believe they will provide more food to their children when their real money incomes increase and food is available in local markets.

Seasonal hunger usually increase just before the harvest. Improvement in food storage by rural households will reduce food losses and improve food availability throughout the year. An improvement on the marketing system for staple foods will streamline food availability over geographical areas and time. Successful market liberalization is likely to reduce the incidence of food shortages. Where seasonal hunger is chronic and purchasing power low, the focus of policy should be on increasing food production and rural incomes to enable households to produce or purchase their own food.

In urban areas, most households purchase food from markets. As shown in our 1987 paper (Amani *et al.*, 1987), market liberalization will improve food availability and reduce parallel market prices. The official minimum wage is, however, not adequate to enable a family to purchase adequate food for a healthy and active life. Urban households could not survive and do not live on their official wages and salaries. As discussed earlier, a number of surveys of household expenditures indicate a multiple level of expenditure, compared with official income received. Moreover, in the informal sector where piece rates prevail, effective minimum wages are higher. Increasing the minimum wage is one possible policy instrument that may improve the food security of minimum wage earners. It can be effective if the increase in the mimum wage is not financed by an inflationary budget deficit that could lead to a reduction in real wages. The macroeconomic impact of an overall general wage increase in an economy, characterised by excess personnel in the public sector and a large current budget deficit, cannot be ignored. Overall government

policy should be directed at establishing an institutional setup that is conducive to increasing productive employment and labour productivity that can permit real wages to increase.

Given the level of development of Tanzania and the budget constraint, the government must largely depend on increasing food production and incomes, better functioning of food markets, and nutrition education in order to improve the nutritional status of rural and urban people. Direct interventions in the form of feeding programs should of necessity be limited to those with severe malnutrition. The health centres and dispensaries that are spread throughout the country can also serve as nutritional education centres with modest food supplement programmes.

A common nutrition programme in many countries is the provision of free school lunch, either to all students in public schools or to targeted poor areas. In Tanzania school lunch programmes in non-boarding schools depend on the ability and success of schools to grow their own food. It is not financially feasible for the central government to finance a national school lunch programme. School authorities and local governments should be encouraged to institute school lunch programmes of their own, using food produced in self-reliant projects and parents' financial contribution.

CONCLUSIONS

This paper complements our 1987 paper that discussed in detail the impact of market liberalization on food supply and availability. We have shown that rural incomes have increased since 1984 and, hence, the consumption of maize, rice, and beans has increased. The estimated increase in demand was generally met by an increases in supply.

It was difficult to estimate the change in urban consumption because formal incomes account for only a small proportion of total expenditure of wage and salary earners. More research is needed to estimate the level of real incomes of urban households and their consumption patterns.

Market liberalization since 1984 has increased the food supply and improved the efficiency of markets. The overall increase in food availability generally increased food security in both rural and urban areas. The incidence of protein-energy malnutrition, particularly among children of less than five years, is still high. An increase in food availability is a necessary but not sufficient condition for eliminating malnutrition. Furthermore, nutrition education and a change in feeding traditions are needed to increase households' food availability to eliminate malnutrition.

A nationwide nutrition survey would help to determine the incidence of malnutrition in different regions and to suggest policy interventions to improve household food security. Given budgetary constraints, a national feeding programme or guarantees of cheap food (below cost) to all is not feasible and can not be sustained. In the long run, food security can be improved if households productively earn adequate income and food markets are efficient. Feeding programmes should be limited to those with severe malnutrition.

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Appendix I. Macroeconomic factors affecting food supply in Tanzania, 1984 to 1986.

July 1984:	
Policy measure:	31% devaluation in terms of Tshs.
Problem Addressed:	Overvaluation of currency.
Impacts to date:	Contributed to a major shift of terms of trade in favour of agriculture. i) Implicit taxation on agriculture through overvaluation has been significantly reduced–raising the relative profitability of agriculture as a whole. ii) Explicit taxation on local food producers (measured as the difference between c.i.f. cost of imports at official exchange rate and official farm gate prices of local supplies was wiped out, as farm gate prices rose sharply.
Problems remaining:	i) Unification of exchange rates: official and parallel market rates. ii) Determination of real exchange rate. iii) Prices of imported goods which service the agricultural sector (such as transport equipment, fertilizer and agrochemicals) increased. This has adverse effects on agricultural production and marketing.
July 1984:	
Policy measure:	Raise producer prices of maize by 82% in nominal terms which was equivalent of 31% in real terms over 1983-84 price. For paddy, there was a 50% and 7.8% increase in nominal and real terms, respectively. Real producer price of export increased by only 1.2 percent.
Problem Addressed:	i) To correct for historical production declines and induce overall supplies. ii) Increase the share of purchase into the official channels. The main objective was to reduce food scarcities and provide for sustainable national food security.
Impacts to date:	The gap between official and the effective parallel market prices was reduced; official purchases increased, food crop almost doubled. Export crops did not increase significantly because relative prices favoured food crops.
Problems remaining:	Relative prices of exports not favourable to increase foreign exchange earnings that are required to revamp the economy, including the agricultural sector.
July 1984:	
Policy measure:	Removal of agricultural input subsidies.
Problem Addressed:	i) Reduce government expenditures on subsidies. ii) Only a handful of farmers could get such inputs.
Impacts to date:	Significant increase in food production, especially maize and rice during 1985-86 and 1986-87.
Problems remaining:	Due to increased prices of inputs, their application has declined. This may have negative long-term consequences on agricultural "modernization", especially for export crops.

July 1984:	
Policy measure:	Reduction of internal trade barriers by removing road blocks and allowing private traders to buy and transport up to 500 kgs of food crops per lot. This quality restriction was removed in March 1987.
Problem Addressed:	i) Legalize the *de facto* market system. ii) The official food market system was inefficient, thus affecting both consumers and producers.
Impacts to date:	i) Has improved access to food. ii) Interregional movement of supplies improved. iii) Private trade margins declined as a result of reduced costs which had hitherto been associated with risks from violation of controls. iv) Spatial variation of consumer prices in the open market significantly declined in the case of maize and more or less stabilized in the case of rice, despite cuts in imports.
Problems remaining:	*De jure*, private traders are not recognized; there is still some resistance from some party and government officials. Due to uncertainty there is inadequate investment in storage facilities. ii) Remote and inaccessible major food-producing regions are yet to benefit from this. Few traders buy from such areas.
July 1984:	
Policy measure:	Removal of consumer subsidies, especially on maize.
Problem Addressed:	i) Government budgetary deficit resulting from paying NMC losses. ii) The subsidy was ineffective due to consistent food shortages.
Impacts to date:	Has brought the official ex-store cost and consumer prices closer together. As a result of other policy measures outlined above, consumer prices did not increase substantially.
Problems remaining:	The financial position of National Milling Corporation continue to be precarious.
July 1984:	
Policy measure:	Partial import liberalization by allowing individuals with foreign exchange to import incentive goods and sell them at market-clearing prices.
Problem Addressed:	i) Chronic shortages of basic consumer goods in urban and rural areas. ii) Reverse capital flight which has been going on illegally for many years.
Impacts to date:	Supply of incentives goods increased significantly; time-consuming queues for scarce commodities have disappeared, and the use of permits for acquisition of commodities, hitherto in severe scarcity, is no longer practiced.
Problems remaining:	The exchange rate applicable to official exports was not affected by liberalization measures. Thus, two exchange rate systems were introduced with different exchange rates for imports and exports. Exports continue to be penalized since they had to sell cheap and buy dear from importers.

July 1986:	
Policy measure:	Exchange rate adjustment via crawling peg system.
Problem Addressed:	i) To further correct for overvaluation of the Tshs and remove bias against export crops. ii) To reduce losses of marketing boards and cooperatives that purchase and export agricultural products.
Impacts to date:	The producer price of export crops has risen, thus remove the bias against such crops caused by partial import liberalisation measure outlined above.
Problems remaining:	i) The question at hand is how to allocate the windfall income of the devaluation between producers and marketing institutions. ii) Further increases in prices of imported goods means higher costs of production and marketing.
July 1986:	
Policy measure:	Increase of producer prices by 5% in real terms annually or setting them at a level equivalent to 60-70% of FOB prices, whichever is higher. Increase in producer price of major staples.
Problem Addressed:	Adjustment of producer prices to counter the impact of inflation.
Impacts to date:	The sale price of export crops, has risen and has led to substantial increase in the production of annual export crops, particularly cotton, and to a lesser extent tobacco. ii) Increase in official purchases of major staples, particularly maize and paddy.
Problems remaining:	i) How to reconcile real increases in the producer prices with limiting increases in consumer prices in official channel. ii) Financial problems of cooperatives because of high operating costs. iii) Transportation of these crops is now a major bottleneck.
July 1986:	
Policy measure:	Reduction in price controls.
Problem Addressed:	Rationalize the internal trade in order to unify and parallel markets of both food staple and manufactured goods.
Impacts to date:	Increase in availability of goods in open markets at prices reflecting supply and demand.
Problems remaining:	High prices of goods in parallel markets. Reinstitution of price controls is politically attractive.